**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

ADAPTIVE SPECTRUM AND SIGNAL ALIGNMENT, INC., Plaintiff, v. AT&T ENTERPRISES, LLC, AT&T MOBILITY LLC, AT&T MOBILITY II LLC AND AT&T SERVICES INC. Defendants.	Civil Action No.: 2:24-cv-00029-JRG-RSP **JURY TRIAL DEMANDED**

**PLAINTIFF ADAPTIVE SPECTRUM AND SIGNAL ALIGNMENT, INC.'S
OPENING CLAIM CONSTRUCTION BRIEF**

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I.   INTRODUCTION

ASSIA respectfully requests that the Court adopt its claim construction proposals, which are consistent with the intrinsic and extrinsic evidence of the asserted patents.

II.   LEGAL AUTHORITY

A.   Claim Construction Generally

"[T]he claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*). As such, if the parties dispute the scope of the claims, the court must determine their meaning. *See, e.g.*, *Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1317 (Fed. Cir. 2007) (Gajarsa, J., concurring in part); *see also Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996), *aff'g*, 52 F.3d 967, 976 (Fed. Cir. 1995) (*en banc*). Claim construction, however, "is not an obligatory exercise in redundancy." *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997).

When construing claims, "[t]here is a heavy presumption that claim terms are to be given their ordinary and customary meaning." *Aventis Pharm. Inc. v. Amino Chems. Ltd.*, 715 F.3d 1363, 1373 (Fed. Cir. 2013) (citing *Phillips*, 415 F.3d at 1312–13). Courts must therefore "look to the words of the claims themselves . . . to define the scope of the patented invention." *Id.* (citations omitted). The "ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, *i.e.*, as of the effective filing date of the patent application." *Phillips*, 415 F.3d at 1313. This "person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.*

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Intrinsic evidence is the primary resource for claim construction. *See Power-One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 1348 (Fed. Cir. 2010) (citing *Phillips*, 415 F.3d at 1312). For certain claim terms, "the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Phillips*, 415 F.3d at 1314; *see also Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005) ("We cannot look at the ordinary meaning of the term . . . in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history."). But for claim terms with less-apparent meanings, courts consider "those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean . . . [including] the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." *Phillips*, 415 F.3d at 1314.

There are "only two exceptions to [the] general rule" that claim terms are construed according to their plain and ordinary meaning: "1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of the claim term either in the specification or during prosecution." *Golden Bridge Tech., Inc. v. Apple Inc.*, 758 F.3d 1362, 1365 (Fed. Cir. 2014) (quoting *Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)). The standards for finding lexicography or disavowal are "exacting." *GE Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014).

To disclaim the full scope of a claim term, the patentee's statements in the specification or prosecution history must amount to a "clear and unmistakable" surrender. *Cordis Corp. v.*

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Bos. Sci. Corp., 561 F.3d 1319, 1329 (Fed. Cir. 2009); *see also Thorner*, 669 F.3d at 1366 ("The patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope."). "Where an applicant's statements are amenable to multiple reasonable interpretations, they cannot be deemed clear and unmistakable." *3M Innovative Props. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1326 (Fed. Cir. 2013).

B.   Means Plus Function Terms

A patent claim may be expressed using functional language. *See* 35 U.S.C. § 112 ¶ 6 (pre-AIA) (referred to herein as § 112(f) for clarity); *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347–49, 1347 n.3 (Fed. Cir. 2015) (*en banc* in relevant portion). Under 35 U.S.C. § 112(f), a structure may be claimed as a "means . . . for performing a specified function," and an act may be claimed as a "step for performing a specified function." *Masco Corp. v. United States*, 303 F.3d 1316, 1326 (Fed. Cir. 2002). When it applies, § 112(f) limits the scope of the functional term "to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof." *Williamson*, 792 F.3d at 1347.

The limitations of § 112(f) apply only when the language of the claim lacks sufficient structure. There is a rebuttable presumption that § 112(f) applies when the claim language includes "means" or "step for" terms, and a rebuttable presumption it does not apply in the absence of those terms. *Masco Corp.*, 303 F.3d at 1326; *Williamson*, 792 F.3d at 1348. These presumptions stand or fall according to whether one of ordinary skill in the art would understand the claim with functional language to denote sufficiently definite structure or acts for performing the function in the context of the entire specification. *See Media Rights Techs., Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366, 1372 (Fed. Cir. 2015) (noting § 112 ¶ 6 does not apply when "the claim language, read in light of the specification, recites sufficiently definite structure")

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(quotation marks omitted) (citing *Williamson*, 792 F.3d at 1349; *Robert Bosch, LLC v. Snap-On Inc.*, 769 F.3d 1094, 1099 (Fed. Cir. 2014)); *Masco Corp.*, 303 F.3d at 1326 (noting § 112(f) does not apply when the claim includes an "act" corresponding to "how the function is performed"); *Personalized Media Commc'ns, LLC v. I.T.C.*, 161 F.3d 696, 704 (Fed. Cir. 1998) (noting § 112(f) does not apply when the claim includes "sufficient structure, material, or acts within the claim itself to perform entirely the recited function . . . even if the claim uses the term 'means.'" (quotation marks and citation omitted)).

Construing a means-plus-function limitation involves multiple steps. "The first step . . . is a determination of the function of the means-plus-function limitation." *Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1311 (Fed. Cir. 2001).

> The first step in construing such a limitation is a determination of the function of the means-plus-function limitation. The next step is to determine the corresponding structure described in the specification and equivalents thereof. Structure disclosed in the specification is corresponding structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.

Id. (citations and quotations omitted). The corresponding structure "must include all structure that actually performs the recited function." *Default Proof Credit Card Sys. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1298 (Fed. Cir. 2005). But § 112(f) does not permit "incorporation of structure from the written description beyond that necessary to perform the claimed function." *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999).

"[S]tructure can be recited in various ways, including [by using] 'a claim term with a structural definition that is either provided in the specification or generally known in the art,' or a description of the claim limitation's operation and 'how the function is achieved in the context of the invention.'" *Dyfan, LLC v. Target Corp.*, 28 F.4th 1360, 1366 (Fed. Cir. 2022) (quoting *Apple, Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1299 (Fed. Cir. 2005)). For § 112(f) limitations

implemented by a programmed general-purpose computer or microprocessor, the corresponding

structure described in the patent specification must usually include an algorithm for performing

the function. *WMS Gaming Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). In

that case, the corresponding structure is not a general-purpose computer but rather the (now)

special-purpose computer programmed to perform the disclosed algorithm. *Aristocrat Techs.*

Austl. Pty Ltd. v. Int'l Game Tech., 521 F.3d 1328, 1333 (Fed. Cir. 2008).

C.   Indefiniteness

"[A] patent is invalid for indefiniteness if its claims, read in light of the specification

delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those

skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572

U.S. 898, 901 (2014). The claims "must be precise enough to afford clear notice of what is

claimed" while recognizing that "some modicum of uncertainty" is inherent due to the

limitations of language. *Id.* at 908. "Indefiniteness must be proven by clear and convincing

evidence." *Sonix Tech. Co. v. Publ'ns Int'l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017).

D.   The Level of Ordinary Skill in the Art

The level of ordinary skill in the art is the skill level of a hypothetical person who is

presumed to have known the relevant art at the time of the invention. *In re GPAC*, 57 F.3d 1573,

1579 (Fed. Cir. 1995). In resolving the appropriate level of ordinary skill, courts consider the

types of and solutions to problems encountered in the art, the speed of innovation, the

sophistication of the technology, and the education of workers active in the field. *Id.* Importantly,

"(a) person of ordinary skill in the art is also a person of ordinary creativity, not an automaton."

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 421 (2007).

III.   BACKGROUND OF THE PATENTED TECHNOLOGY

The patents-in-suit solve various problems related to the transmission of electronic information over copper lines, *e.g.*, twisted pair telephone lines. One common use for sending signals over copper lines is for the delivery of broadband internet service to homes and businesses using DSL technology. This technology can deliver Internet service at varying speeds over pre-existing copper wire infrastructure. This allows Internet service providers to provide broadband service without the expense or logistical difficulties of installing fiber optic lines or other infrastructure throughout the country and inside customers' homes or businesses.

However, when electronic data is transported over copper lines, those lines can emit electromagnetic radiation and cause interference with other nearby lines. This interference is referred to as near-end crosstalk ("NEXT") and far-end crosstalk ("FEXT") depending on which side of the line is affected. In addition, devices or events external to the copper lines can also cause interference. Sudden unexpected causes of interference may be referred to as impulse noise events. The patents-in-suit address these problems and provide other benefits.

'122 Patent: The '122 patent describes a training system that allows an operator to turn on new lines in a network without requiring the operator to shut the network down and restart a lengthy initialization process. Ex. A ('122 patent) at 1:65–2:8. When a new line is added to a network, it may introduce new interference that could degrade performance for the already operating lines. *Id.* at 1:43–49. The '122 patent describes a way of collecting operational data from the various lines so that a new line can be added to the network without disrupting the other lines, *e.g.*, by temporarily adjusting its transmit power or data rate. *Id.* at 3:20–27.

'631 Patent: The '631 patent teaches that there are undesirable NEXT effects when one line transmits upstream as a different nearby line transmits downstream. Ex. B ('631 patent) at 3:36–51; Fig. 4. To reduce these effects, the '631 patent teaches that the timeslots for

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transmitting data upstream and downstream should be scheduled so that they are substantially not simultaneous. *Id.* at 3:52–64; Fig. 5. This also allows the system to dynamically adjust time slot lengths based on upstream and downstream usage of the various lines. *Id.* at 10:8–13.

'458 Patent: The '458 patent provides a way of measuring the NEXT and FEXT caused by each line in a group of lines so that appropriate interference cancellation signals can be calculated. Ex. C ('458 patent) at 1:25–38. Using this invention, a transmitting device such as a DSL Access Multiplexer ("DSLAM") can transmit a known sequence of information on the lines so that the amount of interference caused by each line into every other line can be measured. The DSLAM can then order the lines based on, *e.g.*, the amount of interference, and use that information to calculate cancellation signals to reduce or eliminate interference. *Id.* at 4:24–39.

IV.   '122 PATENT ANALYSIS

A.   "DSL line set" (Claims 14–18, 20)

ASSIA's Proposal	AT&T's Proposal
set of one or more DSL lines	Plain and ordinary meaning; no construction necessary.

As used in technical contexts, the term "set" typically refers to a group of one or more items. *See* Ex. G ("Brody Decl.") ¶¶ 40–42. However, lay jurors may misinterpret this term as requiring two or more items. ASSIA proposes a construction that explains the technical meaning of this term and that is consistent with the intrinsic evidence of the '122 patent.

First, the claims themselves demonstrate that a "DSL line set" encompasses one or more DSL lines, as opposed to requiring two or more DSL lines. Asserted claim 17, dependent from claim 14, specifies that the "the already-operating DSL line set" can include "a single DSL line" or "a plurality of DSL lines." Ex. A at 20:34–39 (claim 17). Not only does dependent claim 17 explicitly include both a single line and multiple lines within the scope of the claimed "DSL line set," but under principles of claim differentiation, it is presumed that independent claim 14 *at*

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minimum contains this same claim scope. *See, e.g.*, *Phillips*, 415 F.3d at 1314–15. Therefore, when claim 14 recites a "DSL line set," the term is presumed to include both "a single DLS line" and "a plurality of DSL lines." ASSIA's proposed construction accurately captures this scope.

Further intrinsic evidence supports this conclusion. The specification states that "the transmit power of a DSL line set (**which may be one or more DSL lines**) is . . . ." Ex. A at 15:17–18 (emphasis added). The parenthetical of this excerpt is directly addressing the fact that the described "DSL line set" can be "one or more DSL lines," just as the term is ultimately used in claims 14 and 17. And while the specification often uses the term "set" or "line set" to address situations with multiple lines, the intrinsic evidence discussed above demonstrates that the claimed "DSL line set" includes a set of one, single DSL line. In order to avoid jury confusion (or suggestions that a claimed "DSL line set" must include multiple DSL lines), the Court should adopt ASSIA's proposed construction.

B.   AT&T's Alleged § 112(f) Terms

"a data collection unit configured to collect operational data from a new DSL line set and an already-operating DSL line set, collecting operational data, via a data collection unit, from the new DSL line set and the already-operating DSL line set;" *(Claims 14, 20)*	
ASSIA's Proposal	**AT&T's Proposal**
No construction necessary. These terms are not governed by § 112(f). In the alternative, if § 112(f) does apply, the function for claim 14 is: collecting operational data from a new DSL line set and an already-operating DSL line set; The corresponding structure includes: a computer, processor, IC, computer module, etc. as described at 13:35-39	This term is governed by § 112(f) and is indefinite for lack of corresponding structure.

"an analysis unit coupled to the collection unit, wherein the analysis unit is configured to: analyze the collected operational data; determine an operational configuration for at least one DSL line in the new DSL line set that will allow the new DSL line set to join the already-operating DSL line set without disrupting the already- operating DSL line set; evaluate data received by the new DSL line set; and evaluate data received by the already-operating DSL line set; performing the following operations, via an analysis unit coupled to the collection unit: analyzing the collected operational data; determining an operational configuration for at least one DSL line in the new DSL line set that will allow the new DSL

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line set to join the already-operating DSL line set without disrupting the already-operating DSL line set; evaluating data received by the new DSL line set; and evaluating data received by the already-operating DSL line set;" *(Claims 14, 20)*

ASSIA's Proposal	AT&T's Proposal
No construction necessary. These terms are not governed by § 112(f). In the alternative, if § 112(f) does apply: **Function:** analyzing the collected operational data; determine an operational configuration for at least one DSL line in the new DSL line set that will allow the new DSL line set to join the already-operating DSL line set without disrupting the already- operating DSL line set; evaluate data received by the new DSL line set; and evaluate data received by the already-operating DSL line set; **Structure:** a computer, processor, IC, computer module, etc. as described at 13:55-56.	This term is governed by § 112(f) and is indefinite for lack of corresponding structure.

"a control signal generator coupled to the analysis unit, wherein the control signal generator is configured to send control signals to the new DSL line set and to the already-operating DSL line set, further wherein the control signals comprise signals controlling operation of at least one of the following: the new DSL line set; or the already-operating DSL line set; sending control signals, via a control signal generator coupled to the analysis unit, to the new DSL line set and to the already- operating DSL line set, further wherein the control signals comprise signals controlling operation of at least one of the following: the new DSL line set; or the already-operating DSL line set;" *(Claim 1)*

ASSIA's Proposal	AT&T's Proposal
No construction necessary. These terms are not governed by § 112(f). In the alternative, if § 112(f) does apply: **Function**: "sending control signals to the new DSL line set and to the already-operating DSL line set, further wherein the control signals comprise signals controlling operation of at least one of the following: the new DSL line set; or the already-operating DSL line set" **Structure**: a computer, processor, IC, computer module, etc. as described at 13:65-14:18.	Subject to 35 U.S.C. § 112, ¶ 6. **Function**: "sending control signals to the new DSL line set and to the already-operating DSL line set, further wherein the control signals comprise signals controlling operation of at least one of the following: the new DSL line set; or the already-operating DSL line set" **Structure:** "[A] DSLAM, modem and/or system operating signal generating means 350 (which can be a computer, processor, IC, computer module, etc. of the type generally known) inside or outside the controller 310." (13:65-14:2).

Section 112(f) does not apply to these terms. Structure sufficient to avoid application of § 112(f) "can be recited in various ways, including through the use of 'a claim term with a structural definition that is either provided in the specification or generally known in the art,' or a

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description of the claim limitation's operation and 'how the function is achieved in the context of

the invention.'" *Dyfan, LLC v. Target Corp.*, 28 F.4th 1360, 1366 (Fed. Cir. 2022) (quoting

Apple Inc. v. Motorola, Inc., 757 F.3d 1286, 1299 (Fed. Cir. 2014)). For claim limitations that

recite computing functionality without using the word "means," the use of terms such as

"processing unit," "computer," "code," etc. are typically found to be sufficiently structural such

that the presumption against means plus function claiming is not rebutted. *Id.*; *VDPP, LLC v.*

Vizio, Inc., No. 2021-2040, 2022 WL 885771, at *3–*4 (Fed. Cir. Mar. 25, 2022) (reversing

means-plus-function treatment of "a processor adapted to").

      Where the intrinsic and extrinsic evidence indicate that the applicant uses a term as a

stand-in for a computer, processor, or CPU, or code executed by such devices, the term is not

governed by § 112(f). *See Samsung Electronics America, Inc. v. Prisua Engineering Corp.*, 948

F.3d 1342, 1354 (Fed. Cir. 2020) (explaining that "[a]s used in the claims of the [patent-in-suit],

the term 'digital processing unit' clearly serves as a stand-in for a 'general purpose computer' or

a 'central processing unit,' each of which would be understood as a reference to structure in this

case, not simply any device that can perform a particular function").

      For example, in *Sas Inst. Inc. v. World Programming Ltd.*, No. 2:18-CV-295-JRG, 2020

WL 569856, at *14 (E.D. Tex. Feb. 5, 2020) the claim recited a "graph generator module" that

received information and outputted graph information. The court found this limitation to be

structural such that § 112(f) did not apply, *i.e.*, it referred to code executed by a computer. This

interpretation was based on expert testimony and the fact that the surrounding claim language

indicated that the "graph generator module" limitations would be performed by a computer. *Id.* at

*15–*16; *see also id.* at *24 (finding that "model repository facility" limitation is not governed

by section 112(f) because it refers to a "software structure"); *see also Pantech Corp. v. OnePlus*

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Tech. (Shenzhen) Co., No. 5:22-CV-00069-RWS-JBB, 2023 WL 5003574, at *26 (E.D. Tex. Aug. 4, 2023) (rejecting application of § 112(f) to "control unit to execute an operation corresponding to . . ."); *TexasLDPC Inc. v. Broadcom Inc.*, No. 18-CV-1966-SB, 2023 WL 2709746, at *5 (D. Del. Mar. 30, 2023) (same with respect to "control unit" and "check node unit"); *XR Commc'ns, LLC v. D-Link Sys., Inc.*, No. 8:17-CV-00596-DOC-JDE, 2022 WL 2288913, at *14 (C.D. Cal. Jan. 27, 2022) (same with respect to "wireless input/output (I/O) unit"); *Sanho Corp. v. Kaijet Tech. Int'l Ltd., Inc.*, No. 1:18-CV-05385-SDG, 2021 WL 8999035, at *15 (N.D. Ga. Sept. 22, 2021) (same with respect to "data transmission control module" and "USB conversion unit"); *cf. Gesture Tech. Partners, LLC v. Huawei Device Co.*, No. 2:21-CV-40-JRG, 2021 WL 4760632, at *10 (E.D. Tex. Oct. 12, 2021) (finding presumption of § 112(f) rebutted with respect to term "computer means" based on intrinsic record).

In this case, the '122 patent's claims recite a "data collection unit" for collecting operational data from already operating lines, and new lines intended to be included in the network; an "analysis unit" configured to analyze the collected data and determine how the new lines may be appropriately added to the network; and a "control signal generator" that can send control signals for each of the lines so that they operate as determined by the analysis unit. With respect to each of these components, the claim language indicates that these components are performed by one or more processors executing the recited software functionality. Accordingly, they are structural and not governed by § 112(f).

Lest there be any doubt, the specification indicates that each component is implemented using known computer processors:

> The DSL control unit 300 includes a data collection unit 320 identified as a collecting means and an analysis unit 340 identified as analyzing means.

> As seen in FIG. 3A, the collecting means 320 (**which can be a computer, processor, IC, computer module, etc. of the type generally known**) . . .

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> Data collected by means 320 is provided to the analyzing means 340 (**which also can be a computer, processor, IC, computer module, etc. of the type generally known**) . . .

> the analyzing means 340 is coupled to a DSLAM, modem and/or system operating signal generating means 350 (**which can be a computer, processor, IC, computer module, etc. of the type generally known**) inside or outside the controller 310. . .

Ex. A at 13:35–39; 13:54–56; 13:65–14:2 (emphasis added). Because the intrinsic record indicates that these limitations are performed by computer processors, these terms recite sufficient structure such that the presumption against § 112(f) is not rebutted.

This conclusion is also consistent with the extrinsic evidence. ASSIA's expert, Dr. Arthur Brody, has explained that the terms such as DSLAM and DSL control unit are known terms of art that describe computing devices used for controlling DSL lines. Brody Decl. ¶¶ 43–45. He has further explained that a POSITA would understand these claim terms to describe functionality to be performed by the processors included in these devices. *Id.* ¶¶ 46–49.

While the specification quotations above do include the word "means," ASSIA notably omitted that word in the claim language asserted in this case. This further confirms that ASSIA intentionally decided not to invoke § 112(f) through its choice of claim terms.

If § 112(f) applies, the claims are not indefinite. When a court determines that a claim term reciting a "module" or "unit" configured to perform a function is subject to § 112(f), the court may consider whether the specification explains that the function may be performed by code executed by a processor. If so, the term is not indefinite. *See, e.g., Advanced Coding Techs. LLC v. LG Elecs. Inc.*, No. 2:22-CV-00501-JRG, 2024 WL 3794780, at *15 (E.D. Tex. July 21, 2024) (finding terms "moving image data input unit configured to," "an input frame rate specification unit configured to," etc. not indefinite and identifying corresponding structure);

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Pantech Corp. v. OnePlus Tech. (Shenzhen) Co., No. 5:22-CV-00069-RWS-JBB, 2023 WL 5003574, at *25 (E.D. Tex. Aug. 4, 2023) ("gesture identifying unit" had disclosed structure).[1]

If the Court determines that the presumption against § 112(f) claiming is rebutted, the parties agree that the structure corresponding to the "control signal generator" term is recited at 13:65–14:2. The specification provides a nearly identical structural description for the other disputed claim terms. The only difference between these recitations is that the sentence for the "control signal generator" is described as being part of a "DSLAM, modem and/or system." But the specification makes it clear that all three of these components are a part of the same "DSL system." *See, e.g.*, Ex. A at Fig, 3A, 12:63–13:5. Thus, AT&T fails to provide any basis for treating these terms differently with respect to indefiniteness. Indeed, both ASSIA's expert here and AT&T's own IPR expert testified that the identified functions for each of these terms correspond to the structure identified by ASSIA. Brody Decl. ¶¶ 46–49; Ex. D at 23–25. Because the specification recites structure for each of these limitations, if § 122(f) applies to the asserted claims, none of these terms are indefinite for lack of corresponding structure.

C.   "machine readable medium" *(Claim 20)*

ASSIA's Proposal	AT&T's Proposal
No construction necessary. In the alternative: tangible medium of a computer program product.	transitory or non-transitory machine readable medium

The dispute over this term concerns whether it should be interpreted to include intangible embodiments that render the claim invalid under § 101. It should not. The Federal Circuit has explained that common software claim phrases such as "machine readable medium" do not encompass intangible embodiments that would render a claim invalid under § 101. *See Sequoia*

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[1] These cases do *not* support a finding that § 112(f) applies in this case. In those cases, unlike this one, the parties had agreed that the terms at issue were governed by § 112(f).

Tech., LLC v. Dell, Inc., 66 F.4th 1317, 1325 (Fed. Cir. 2023) (reversing district court decision that found claims invalid under § 101 for encompassing intangible embodiments based on the phrase "computer-readable recording medium storing instructions"); *see also BlackBerry Ltd. v. Facebook, Inc.*, 487 F. Supp. 3d 870, 903 (C.D. Cal. 2019), *aff'd*, 831 F. App'x 502 (Fed. Cir. 2020) ("machine-readable medium" claims not invalid under § 101); *CXT Sys., Inc. v. Acad., Ltd.*, No. 2:18-CV-00171-RWS-RSP, 2020 WL 9936131, at *11 (E.D. Tex. Feb. 3, 2020) ("computer-readable medium" claims not invalid under § 101).

The Federal Circuit did invalidate some claims based on their use of the phrase "machine readable medium" in *Mentor Graphics Corp. v. EVE-USA, Inc.*, 851 F.3d 1275, 1294 (Fed. Cir. 2017). However, that decision was based on an express definition in the specification that *required* the claims to include intangible media such as radio waves. *Id.* The Federal Circuit more recently explained that, absent such clear lexicography, this claim term *does not* invalidate a claim. *See Sequoia Tech.*, 66 F.4th at 1324–25 (explaining that *Mentor Graphics* was limited to the specific patent at issue based on lexicography). In this case, the '122 patent does *not* suggest that this term must encompass intangible media:

> In addition, embodiments of the present invention further relate to computer readable media that include program instructions for performing various computer-implemented operations. The media and program instructions may be those specially designed and constructed for the purposes of the present invention, or they may be of the kind well known and available to those having skill in the computer software arts. **Examples of computer-readable media include, but are not limited to, magnetic media such as hard disks, floppy disks, and magnetic tape; optical media such as CD-ROM disks; magneto-optical media such as floptical disks; and hardware devices that are specially configured to store and perform program instructions, such as read-only memory devices (ROM) and random access memory (RAM)**.

Ex. A at 16:64–17:10 (emphasis added). The claim at issue mirrors this explanation claiming: "*A computer program product* comprising: a machine readable medium; and programming

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instructions contained in the machine readable medium. . .” *Id.* at 20:57 (claim 20) (emphasis added). Thus, a POSITA would understand that a machine-readable medium is a physical computer storage device that can store software for performing the claimed invention. Brody Decl. ¶¶ 50–51. In the absence of explicit lexicography to the contrary, this meaning must control. Thus, no construction is necessary. But if a construction is adopted, it should exclude intangible embodiments, such as the transitory signals suggested by AT&T.[2]

V.   '631 PATENT ANALYSIS

A.   "substantially not simultaneous" *(Claims 1, 34)*

ASSIA's Proposal	AT&T's Proposal
No construction necessary.	Indefinite.

A person of skill in the art, after reading the specification, would understand the challenged claim language with reasonable certainty. As detailed above, the '631 patent teaches that there are undesirable near-end crosstalk ("NEXT") effects when one channel transmits upstream as a different channel transmits downstream:
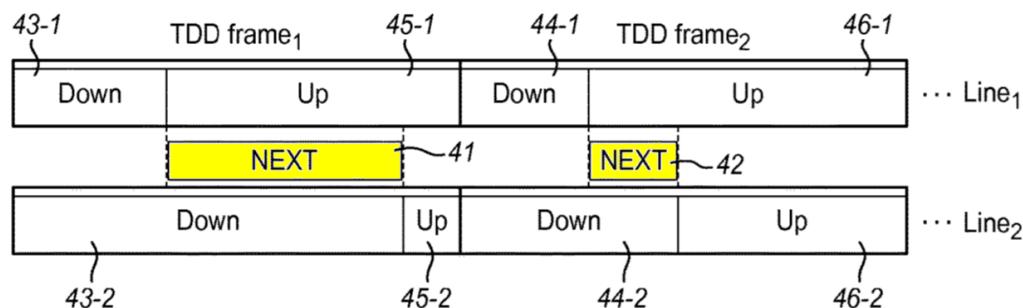
FIG. 4

See Ex. B at Fig. 4 (highlighting added). To reduce NEXT effects, the '631 patent teaches that the timeslots for transmitting data upstream and downstream should be scheduled so that they are

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[2] Note that the word "transitory" AT&T wishes to include is wholly absent from the specification of the '122 patent.

substantially not simultaneous. For example, the patent gives an example where "it is checked whether the downstream time slot is overlapping with another upstream time slot" and "[i]f there is no overlap, then the allocations in [the assignments] step 900 are accepted, and no further action is needed." *See id.* at 8:28–39. The patent goes on to teach how overlap might be avoided by reassigning the timeslot forward or backward in time. *See id.* at 8:40–45. This process is illustrated in Figure 9:
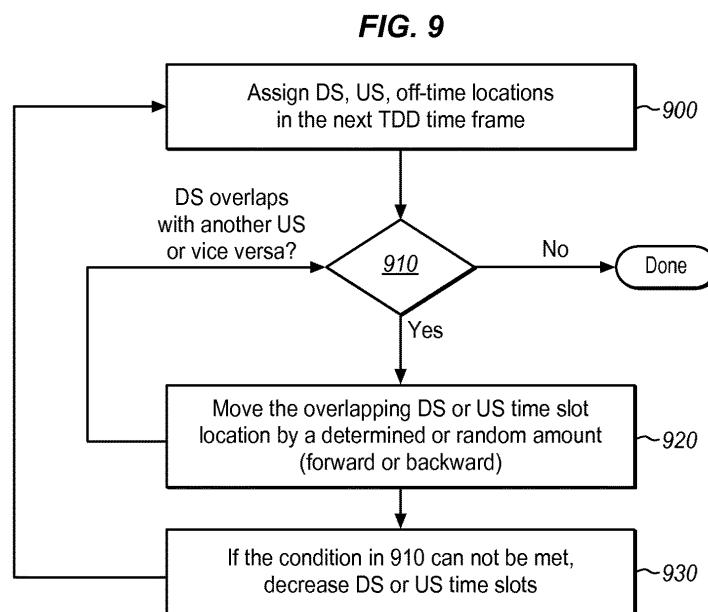
FIG. 9

Id. at Fig. 9. The patent also teaches that this process need not be followed to entirely remove the overlap if NEXT effects are sufficiently reduced such that they can be ignored. *See, e.g., id.* at 4:42–65. This is an embodiment of the claim limitations that require scheduling upstream and downstream time slots "wherein transmission in the upstream time slots is substantially not simultaneous with the transmission in the downstream time slots." *See also id.* at 22:1–13 (claim 34).

With the specification providing explicit teachings on what is and what is not simultaneous transmission, AT&T cannot hope to succeed on its indefiniteness challenge. The

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indefiniteness inquiry is based on the perspective of a person of skill who has read the patent and prosecution history. *See Nautilus*, 572 U.S. at 898–99 ("A patent is invalid for indefiniteness if its claims, read in light of the patent's specification and prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention."). Since a POSITA reading the patent would understand with reasonably certainty what is meant by the "simultaneous" and "not simultaneous" terms, Brody Decl. ¶¶ 53–56, that effectively ends the inquiry in the plaintiff's favor. After all, the word "substantial" is a common modifier in patent claim drafting, and it is firmly established as sufficiently definite by prior case law. *See, e.g.*, *Eibel Process Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45, 66 (1923)("Expressions quite as indefinite as 'high' and 'substantial,' in describing an invention or discovery, in patent specifications and claims, have been recognized by this court as sufficient.").

In line with this precedent, the Federal Circuit has repeatedly explained that terms of degree do not render a patent invalid as indefinite. In *One-E-Way, Inc. v. Int'l Trade Comm'n*, 859 F.3d 1059 (Fed. Cir. 2017), the Federal Circuit reversed the ITC's finding that the term "virtually free from interference" was indefinite. The inclusion of the term "virtually" posed no difficulty: "While we note that 'virtually' is a term of degree, one that slightly expands the scope of the term 'free from interference,' the inclusion of 'virtually' in these claims does not render them indefinite." *See id.* at 1067; *see also Ironburg Inventions Ltd. v. Valve Corp.*, 64 F.4th 1274, 1284 (Fed. Cir. 2023) (affirming the district court's finding that the term "substantially the full distance between the top edge and the bottom edge" was definite); *Apple Inc. v. Samsung Elecs. Co.*, 786 F.3d 983, 1002 (Fed. Cir. 2015) (affirming judgment that the phrase "substantially centered" did not render a claim indefinite); *Exmark Mfg. Co. Inc. v. Briggs & Stratton Power Prod. Grp., LLC*, 879 F.3d 1332, 1347 (Fed. Cir. 2018) (finding term "elongated

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and substantially straight" was not indefinite even when expert and co-inventor "was unable to provide any order of magnitude to quantify exactly how long the elongated baffle portion must be" but testified that length was relative to proportions of other components); *In re Marosi*, 710 F.2d 799, 802 (Fed. Cir. 1983) ("Insofar as it requires appellants to specify a particular number as the cutoff between their invention and the prior art, the PTO's position is impractical. Appellants' invention does not reside in such a number.").

In light of the examples and explanations of the patent and the long-established tolerance for terms of degree such as "substantially" in patent claim drafting, the Court should reject AT&T's argument and find the challenged claims to be definite.

B.   "physical channel" (Claims 1, 9, 11, 14, 33, 34, 35, 37)

ASSIA's Proposal	AT&T's Proposal
No construction necessary.	a channel that transmits in only the upstream or the downstream, not both

As explained above, the '631 patent describes a way of managing time slots in communication systems that include multiple physical channels, *e.g.*, DSL networks where multiple twisted pair copper lines are plugged into a single DSLAM. *See* Ex. B at 1 (Abstract) ("Time division duplex transmission over copper physical channels is managed."); Fig. 10 (illustrating multiple twisted pair lines as physical channels). Because this term uses ordinary words that are readily understandable in light of the specification, no construction is necessary.

AT&T's proposed construction is inconsistent with how a POSITA would understand the meaning of the term "physical channel." Brody Decl. ¶¶ 57–59. Neither the plain language of this term, the claims, nor the specification indicate that it refers to a channel that can only transmit in the upstream or downstream, not both. Indeed, such an interpretation would defeat the purpose of this invention. *See id.* ¶ 59. As the specification explains, this invention is designed to work in a TDD system, which is by definition, a system where the channels at issue

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can transmit in both the upstream and downstream directions, albeit during different time slots. Ex. B at 1:24–27 ("TDD (Time Division Duplex) systems transmit downstream (network to subscriber) data and upstream (subscriber to network) data in distinct time slots of the same physical channel."). This concept is also depicted visually. For example, as shown above in Figure 4, each channel communicates in both upstream and downstream directions.

AT&T's proposal is apparently based on ASSIA's statements during prosecution, but those statements fail to rise to the level of unmistakable disclaimer. *See, e.g.*, *Thorner*, 669 F.3d at 1366. During prosecution, the examiner rejected claim 1 based on a combination of Williams and Cioffi. Ex. E at ASSIA_AT&T-070697. According to the examiner, Williams described a system that used TDD channels, but "Williams doesn't explicitly teach about a first and second physical channels that are subjected to crosstalk." *Id.* The Examiner proposed that a POSITA would modify Williams by adding upstream-only and downstream-only lines as disclosed in Cioffi. *Id*. at ASSIA_AT&T-070697–ASSIA_AT&T-070698 (arguing that Cioffi discloses "first physical channel (line) for downstream and second physical channel for upstream that are subjected to crosstalk").

In response, ASSIA explained that the examiner had misunderstood how these references operate. Neither of these references disclose upstream-only or downstream-only lines, which is what the examiner identified as the proposed motivation to combine:

> Further, there are no separate physical channels for downstream and upstream in Williams. Instead, both upstream and downstream transmission is on the same channel which is time multiplexed by the switches SW0, SWI, SW2, SW3.
>
> [. . .]
>
> Cioffi does not disclose having separate channels for upstream and downstream. Instead, the alleged lines Cioffi appear to be bi-directional. Therefore, Cioffi does not have the need for having separate channels for upstream and downstream. As such, Cioffi and Williams together or alone do not disclose a method in a data

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communications system for managing multiple time division physical channels that are subject to crosstalk, the method comprising. . .

Id. at ASSIA_AT&T-070729. This explanation merely describes the technical difficulties in attempting to combine the two asserted references. Nowhere in this explanation did ASSIA disclaim claim scope or otherwise state that the claims required the use of upstream-only or downstream-only lines. Accordingly, AT&T cannot meet the "exacting standard" for demonstrating disclaimer, and AT&T's proposed construction should be rejected.

C.   **"machine-readable medium"** *(Claim 34)*

ASSIA's Proposal	AT&T's Proposal
No construction necessary. In the alternative: tangible medium of a computer program product.	transitory or non-transitory machine readable medium

As explained above, the phrase "machine readable medium" needs no construction unless the patentee expressly defined the term to encompass transitory media, which would render the claim ineligible under § 101. Here, the claim is not drafted to cover transitory media, and even if this claim term were interpreted so broadly, the Court should find that the claim excludes such invalidating embodiments based on prosecution disclaimer and judicial correction.

The '631 patent's specification explains that the "instructions" for practicing the claimed inventions may be embodied in "hardware," or they may be software "stored in memory embodied in a non-transitory computer readable medium:

> As described herein, instructions may refer to specific configurations of hardware such as application specific integrated circuits (ASICs) configured to perform certain operations or having a predetermined functionality or software instructions stored in memory embodied in a non-transitory computer readable medium.

Ex. B at 18:63–67. Similarly, the claim recites "A machine-readable medium having instructions that when operated on by the machine cause the machine to perform operations comprising: . . ."

Id. at 22:1–3 (claim 34). This claim is plainly referring to a machine-readable medium for storing

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instructions, *i.e.*, hardware or software stored in non-transitory media as explained in the specification.[3] *See* Brody Decl. ¶¶ 65–66. As with the '122 patent, no construction is necessary for this term, but if a construction is adopted, it should exclude intangible embodiments, such as the transitory signals suggested by AT&T.

The prosecution history confirms this conclusion. During prosecution, the examiner raised a § 101 rejection for this claim noting that it could be interpreted to encompass transitory embodiments. Ex. E at ASSIA_AT&T-070832. To get over that rejection, the applicant agreed to amend claim 34 to recite "*non-transitory* machine readable medium."[4] *Id.* With that amendment in place, *id.* at ASSIA_AT&T-070834, the examiner entered a notice of allowance. *Id.* at ASSIA_AT&T-070833–ASSIA_AT&T-070837. Because of an Office printing error, the term "non-transitory" was omitted from the issued patent. Nonetheless, the applicant's unequivocal statement that this claim does not cover transitory media (made through agreement to the Examiner's proposed amendment) is plainly a disclaimer of claim scope.

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[3] AT&T may cite the following description of how "electronic devices" work from the '631 patent's specification:

> [T]he techniques shown in the figures can be implemented using code and data stored and executed on one or more electronic devices (e.g., a UE, an eNB, etc.). Such electronic devices store and communicate (internally and/or with other electronic devices over a network) code and data using machine-readable media, such as non-transitory machine-readable storage media (e.g., magnetic disks; optical disks; random access memory; read only memory; flash memory devices; phase-change memory) and transitory machine-readable communication media (e.g., electrical, optical, acoustical or other form of propagated signals—such as carrier waves, infrared signals, digital signals, etc.).

Ex. B at 19:1–13. However, this statement merely explains that "electronic devices" employ "machine-readable storage media" for storing instructions, and during operation, they generate signals referred to as "machine readable communication media." Nothing in this passage amounts to lexicography or otherwise alters the scope of the claim language.

[4] The examiner's rejection was issued without the benefit of *Sequoia Tech.*, 66 F.4th 1317.

In addition, the Court may correct this clear printing error made by the Patent Office. Courts are empowered to correct printing errors if they are "apparent from the face of the patent, and that view is not contradicted by the prosecution history." *See Hoffer v. Microsoft Corp.*, 405 F.3d 1326, 1331 (Fed. Cir. 2005). In *Hoffer*, a printing office error caused a dependent claim to refer to claim 38 even though the patent contained fewer than 38 claims. The Federal Circuit reversed the district court's refusal to correct this error. It found that the existence of an error was clear on the face of the patent and that the correct claim dependency was clear from the prosecution history. It further explained: "Absent evidence of culpability or intent to deceive by delaying formal correction, a patent should not be invalidated based on an obvious administrative error." *Id.* In particular, a Court may correct a claim by inserting an omitted word. *See, e.g., Novo Indus., L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1357 (Fed. Cir. 2003) (citing *Lemelson v. General Mills, Inc.*, 968 F.2d 1202, 1203 & n. 3 (Fed.Cir.1992)) (explaining that the Court could add the word "toy" into a claim for a toy train where that word was omitted due to a printing error); *TracBeam, L.L.C. v. AT&T, Inc.*, No. 6:11-CV-96, 2013 WL 250532, at *18 (E.D. Tex. Jan. 23, 2013) (correcting printing error that would have otherwise rendered claim indefinite). In this case, ASSIA clearly did not intend to obtain an invalid claim, as evidenced by the prosecution history. Thus, to the extent the claim contains an error, the court may correct it by confirming that Claim 34 is limited to a *non-transitory* machine readable medium.

D. "means for scheduling upstream/downstream time slots for upstream/downstream transmission in a first/second physical channel" *(Claim 37)*

ASSIA's Proposal	AT&T's Proposal
Subject to 35 U.S.C. § 112(f). **Function:** [Agreed] **Structure:** a TDD	Subject to 35 U.S.C. § 112(f). **Function:** "scheduling upstream/downstream time slots for upstream/downstream transmission in a first/second physical channel" (claim 37)

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| management system, a scheduling module, and/or equivalents thereof. | **Structure:** Structure includes a TDD management system, which "includes a memory 1295 coupled directly or through a bus to a processor or processors 1296. The memory may be a hard drive, non-volatile memory, solid state memory, or a combination of different memory types for different purposes. The processor may also include its own internal memory. The memory may, for example, store instructions to be executed and the processor may execute the stored instructions. The processor may also implement or execute implementing logic 1260 having logic to implement the methodologies discussed herein. System 1200 includes one or more communications buses 1215 to connect the various illustrated components and to transfer transactions, instructions, requests, and data within the system among the components and other peripheral devices. The system further includes a management interface 1225 coupled to the bus and to external management devices, for example, to receive requests, return responses, and otherwise interface with network elements located separately from the system. This information may include Operations Support System (OSS) data and Management Information Database (MIB) parameters. These network elements may include access nodes, a central office, vectoring units, crossboxes, TU-Rs, and TU-Os. The system further includes a LAN (Local Area Network) interface 1230 coupled to the bus and externally to communicate information via a LAN based connection, including collecting network information, reporting information and diagnostics to other entities within the network, and for initiating instructions and commands over the network. The system further includes a WAN (Wide Area Network) interface 1235 coupled to the bus and to an external WAN, to communicate information via a WAN based connection for similar purposes and to reach other more remote devices." '631 patent at 14:47–15:13.

OR

Structure includes a scheduling or analysis module of a management device, which "is coupled to the bus [and] includes a collection module 1270, analysis module 1275, diagnostics module 1280, and implementation module 1285. Management Device 1201 may be installed and configured in a compatible system 1200 as is depicted by FIG. 12A, or provided separately so as to operate in conjunction with appropriate implementing logic 1260 or other software." *Id*. at 15:45-51. The modules of the management device 1201 may be provided as separate components coupled to the bus 1215 as shown or may be incorporated into the processor or memory or another component. The management device may include its own processing and memory resources that interact with the processor and the external interfaces. The management device may include more or fewer modules than those shown. The TDD management system of FIG. 12 is provided only as an example and may be modified to suit different implementations. It may also be incorporated into another component such as an access node, or a |

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	TU-O. In one embodiment, the management system is provided as a card in a system rack with a backplane interface to communicate with local and remote network elements." *Id.* at 16:6–19.

These claim terms include the word "means," and the parties agree that they invoke section 112(f). As to the recited function, the parties also agree that the recited function is scheduling upstream/downstream time slots for upstream/downstream transmission in a first/second physical channel. As to the disclosed corresponding structure, the specification of the '631 patent identifies a time division duplex management system as the structure that performs the function of scheduling upstream and downstream time slots in a physical channel:

Recited Functions	Specification
scheduling upstream/downstream time slots for upstream/down-stream transmission in a first/second physical channel	"At 1106, the TDD management system schedules upstream time slots for upstream transmission in one or more physical channels. A[t] 1108, the TDD management system schedules downstream time slots for downstream transmission in one or more physical channels." Ex. B ('631 patent) at 13:62–66.

The specification also teaches that a software scheduling module performs the function of scheduling upstream and downstream time slots. *See* Ex. B at 15:55–58 ("The scheduling module **1275** analyzes the information retrieved by the collection module and generates upstream and downstream time slot schedules including, as appropriate, off times and active transmission times."); *see also* Brody Decl. ¶¶ 68–69 (explaining that a POSITA would understand the structure for scheduling time slots to be this scheduling software executed by a processor). In line with these disclosures, Plaintiff's proposed construction correctly identifies the TDD management system and scheduling module as the corresponding structure for performing the recited functions, and it should therefore be adopted.

AT&T does not argue that this is insufficient structure. Rather, the dispute between the parties is that AT&T's proposed construction further includes individual components (*e.g.*, a

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LAN interface, a WAN interface, etc.) of the preferred TDD management system/module

embodiments. This is legally flawed: "The individual components, if any, of an overall structure

that corresponds to the claimed function are not claim limitations. Rather, the claim limitation is

the overall structure corresponding to the claimed function." *Odetics, Inc. v. Storage Tech.*

Corp., 185 F.3d 1259, 1268 (Fed. Cir. 1999). Worse, some of the individual components in

AT&T's proposed construction are optional even in the preferred embodiment, *e.g.*, "[t]his

information may include Operations Support System (OSS) data and Management Information

Database (MIB) parameters." This is another legal flaw in AT&T proposed construction.

"Structural features that do not actually perform the recited function do not constitute

corresponding structure and thus do not serve as claim limitations." *Asyst Techs., Inc. v. Empak,*

Inc., 268 F.3d 1364, 1370 (Fed. Cir. 2001); *see also Micro Chem.*, 194 F.3d at 1258 (§ 112 does

not permit "incorporation of structure from the written description beyond that necessary to

perform the claimed function"). In sum, AT&T's proposed construction is legally flawed and

should be rejected.

VI.   '458 PATENT ANALYSIS

A.   "A method of evaluating operational characteristics of a multi-line, vectored Digital Subscriber Line (DSL) system having a plurality of crosstalking lines in a common communication channel (channel)" *(Claim 1)*

ASSIA's Proposal	AT&T's Proposal
No construction necessary; this preamble is non-limiting.	Preamble is limiting.

Generally, "the preamble does not limit claims." *Am. Med. Sys., Inc. v. Biolitec, Inc.*, 618

F.3d 1354, 1358 (Fed. Cir. 2010). "[A] preamble limits the invention if it recites essential

structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim." *Catalina*

Mktg. Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002). "Conversely, a

preamble is not limiting where a patentee defines a structurally complete invention in the claim

body and uses the preamble only to state a purpose or intended use for the invention." *Id.* (internal quotations omitted).

For example, in *Sol IP, LLC v. AT&T Mobility LLC,* the following preamble was found to be not limiting: "A method of performing cell search in a mobile station of a wireless communication system, the method comprising." No. 2:18-CV-00526-RWS-RSP, 2019 WL 6878836, at *5 (E.D. Tex. Dec. 17, 2019). Defendants there argued that the preamble provided "antecedent basis and [is] necessary to understand limitations in the claim bod[y]" particularly with respect to the "wireless communication system." *Id.* at *4–*5. Though the Court agreed the "'wireless communication system' terms derive antecedent basis from the preambles," they did not "further define" anything in the claims and the language was instead "merely 'descriptive' of the limitations set forth in the body of the claim." *Id.* at *5–*6. The Court concluded that the preamble was nothing more than a non-limiting statement of purpose. *Id.* at *6.

That same reasoning applies here. The preamble to Claim 1 of the '458 Patent is similarly descriptive of the body of the claim. It does not give any meaning or vitality to the claim even where it provides antecedent bases for the "plurality of crosstalking lines" and the "common communication channel." In other words, like the independent method claim in *Sol IP*, the claim itself is a structurally complete invention that does not require any "further defin[ition]" from the preamble to render it limiting.

At most, only the portions of the preamble that provide any antecedent basis could arguably be considered limiting. *See, e.g.*, *TomTom, Inc. v. Adolph*, 790 F.3d 1315, 1324 (Fed. Cir. 2015) (holding "the court erred" in construing the entire preamble as limiting rather than just the portions providing antecedent basis). Here, the "method of evaluating operational characteristics of a multi-line, vectored Digital Subscriber Line (DSL) system" is merely a

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statement of intended use of the invention, and the steps discussed in the body of Claim 1 of the

'458 Patent set forth a structurally complete invention regarding the claimed method. *See, e.g.*,

Uniloc 2017 LLC v. Samsung Elecs. Am., Inc., No. 2:18-CV-00508-JRG, 2020 WL 343640, at

*13 (E.D. Tex. Jan. 21, 2020) (holding the "method of protecting" is "a statement of intended

use" and does not add any additional steps to the "structurally complete invention with reference

to what is done with the mobile device"). To the extent the Court finds the "plurality of

crosstalking lines" and the "common communication channel" recited in the preamble provides

antecedent bases for the same terms in the body of the claims and is more than a mere

description of the claimed invention, only those elements should be construed as limiting.

B. "on a periodic basis" *(Claim 4)*

ASSIA's Proposal	AT&T's Proposal
at fixed intervals	Plain and ordinary meaning; no construction necessary.

As understood by a POSITA, the plain and ordinary meaning of the term "periodic,"

refers to something that occurs at fixed intervals. Nonetheless, lay members of the jury may

mistakenly believe that this term has a colloquial meaning, *i.e.*, "every once in a while."

ASSIA's proposed construction clarifies that the plain (technical) meaning applies for this term,

and it will prevent future disputes or jury confusion.

The '458 patent generally describes methods and systems for evaluating crosstalk

amongst communication lines and cancelling or mitigating this interference. *See* Ex. C at 1:26–

38. The specification explains that this data collection can occur "once or over time." *Id.* at

13:65–66. When collecting data over time, the specification clarifies that: "In some cases, the

collecting means 520 will collect [data] **on a periodic basis**, though it also can collect data on-

demand **or on any other non-periodic basis** (for example, whenever a DSLAM or other

component sends data to the compliance control unit), thus allowing the crosstalk interference

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calculation unit 500 to update its information, etc., if desired." *Id.* at 13:66–14:4 (emphasis added). Thus, the specification distinguishes between two types of data collection that may occur over intervals of time: non-periodic collection that occurs "on demand" or "whenever" (meaning every once in a while or at random intervals of time), and periodic collection, which occurs at fixed intervals. While both are repeating processes, the patent here uses the term "periodic" as something repeating at fixed intervals over time—*i.e.*, the process has a "period," or a set time over which a cycle repeats. This matches how the term "periodic" is used in the art. *See* Brody Decl. ¶¶ 72–74; Ex. F (The Authoritative Dictionary of IEEE Standards Terms, 7th Ed. (2000)) ("periodic tasks" are those "processed at regular intervals"; periodic tests are "tests performed at scheduled intervals"; periodic checks are "a test or series of tests performed at designated intervals"); *see also Apple Inc. v. Andrea Elecs. Corp.*, 949 F.3d 697, 709 (Fed. Cir. 2020) (construing "periodically" as "at regular intervals of time").

This understanding is also reflected in the claim language. Independent claim 1 encompasses a method whether occurring "once or over time." Dependent claim 4 (the claim at issue here) adds two requirements: that the information be collected "over time," *i.e.*, more than just once, and that it be collected "periodically," *i.e.*, at fixed intervals. ASSIA's proposed construction ensures that all of the terms in this claim are given meaning in a way that is consistent with how these terms are used in the specification.

DATED: February 5, 2025	Respectfully submitted,
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CERTIFICATE OF SERVICE

I hereby certify that on February 5, 2025, a true and correct copy of the foregoing document was filed electronically with the Clerk of Court using the CM/ECF system. As of this date, all counsel of record have consented to electronic service and are being served with a copy of this document through the Court's CM/ECF system.

/s/ Justin T. Nemunaitis
Justin T. Nemunaitis